THE NAVY & MARINE CORPS AVIATION SAFETY MAGAZINE

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Approach

Focus on CasEvac

The Navy & Marine Corps Aviation Safety Magazine
July-August 2006, Volume 51 No. 4

Mishaps waste our time and resources. They take our Sailors, Marines and civilian employees away from their units and workplaces and put them in hospitals, wheelchairs and coffins. Mishaps ruin equipment and weapons. They diminish our readiness. This magazine's goal is to help make sure that personnel can devote their time and energy to the mission, and that any losses are due to enemy action, not to our own errors, shortcuts or failure to manage risk. We believe there is only one way to do any task: the way that follows the rules and takes precautions against hazards. Combat is hazardous enough; the time to learn to do a job right is before combat starts.

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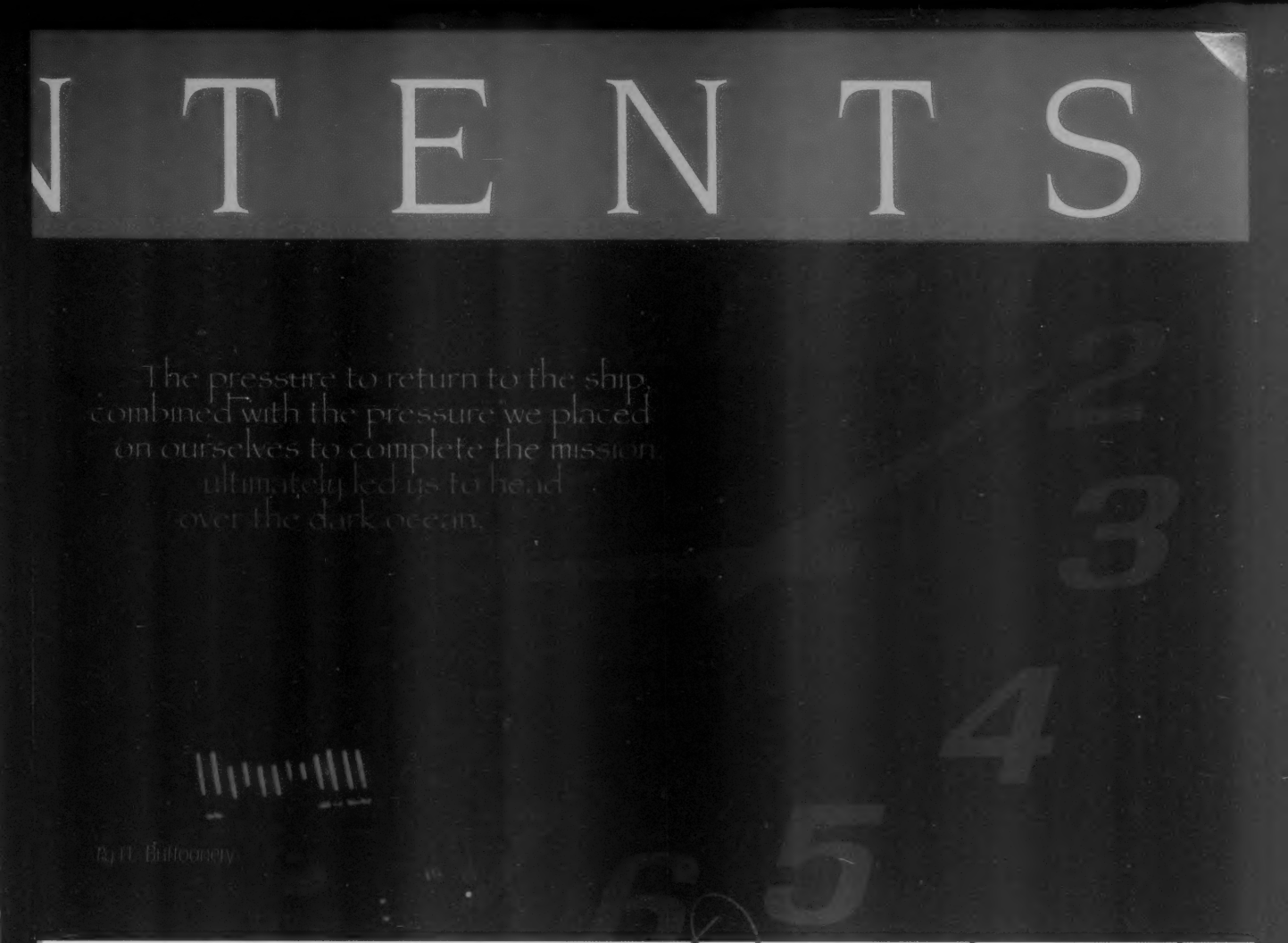

Departments

July-August Thanks

Thanks for helping with this issue...

Cdr. David Tanzer, MC, 3D MAW
Lt. Steve Rands, HSL-42
Ltjg. Arsen Pogosov, VAW-117
Lt. Jake Haff, HSL-46
Lt. Corey Brown, VQ-3
Evelyn Odango, Naval Safety Center
Maj. Jason Johnston, USMC, 3D MAW
LCdr. Craig Remaly, VAQ-140
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Admiral's Corner

From Commander, Naval Safety Center

Taking Care

Are you taking care of your people? I realize this is a basic question that shouldn't need to be asked. But, are you?

There are two topics I want to discuss with you: motor-vehicle safety and casualty-evacuation missions. Both topics revolve around taking care of our people.

We're in the middle of the Critical Days of Summer, which means we should be concentrating on keeping our folks safe on the highways and in off-duty activities, and ready to do our mission. This is the worst year in 14 for private-motor-vehicle deaths, which is tragic.

Despite all our efforts, we continue to lose our finest in preventable mishaps. That's why I asked the beginning question. It doesn't matter where you fit in on the leadership spectrum; every Sailor and Marine is your responsibility. Take that responsibility personally; I do. Keep stressing motor-vehicle safety through the critical days and beyond.

The Naval Safety Center has resources to help you in this challenge. We recently published a special-issue, traffic-safety magazine called *Traffic 5100*. This valuable tool has a wealth of information you can use to prevent PMV mishaps. You should have copies in your spaces, or view the online version at: **wwww.safetycenter.navy.mil/media/traffic5100/**.

The period from Memorial Day to Labor Day, which should be a time to enjoy summer, all too often is a time to mourn the death of a relative or friend on the highways or in an off-duty activity. Each summer we provide a variety of resources for each week. Whether you're organizing a safety stand-down, preparing a brief, or looking for material for your local newsletter, visit our website for information on the Critical Days of Summer at: **www.safetycenter.navy.mil/seasonal/criticaldays/**.

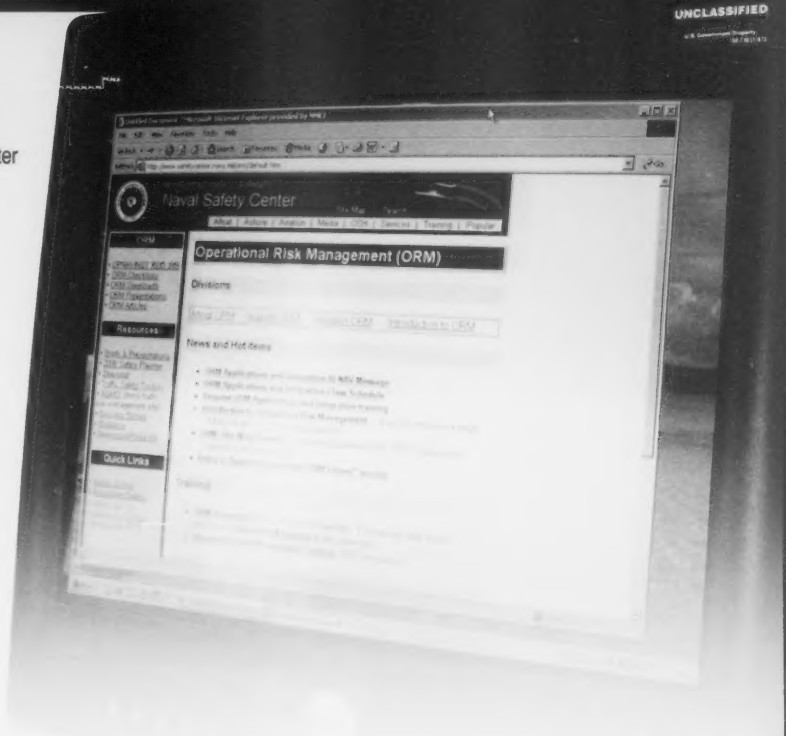
In this issue, we have a special "Focus on CasEvac." These casualty-evacuation missions offer an excellent example of taking care of our people. At a critical, lifesaving moment, the actions of our aircrew and medical teams, along with the escort crews, must be quick and professional, or people will die when they could have lived. This CasEvac section includes mission perspectives from a flight surgeon and a corpsman who recently returned from Iraq. Three additional "There I was" articles, written by helo crew members, show just how dangerous these missions can be. The challenge is to have the medical and aircrew team take care of their patients and get them to the next level of medical treatment. While the intent of a CasEvac is to save lives, a mission gone wrong can end in tragedy. We can't allow the blue threat, ourselves, to interfere with mission success.

Sharing information and real-life scenarios is good for our profession, but our intent with this "Focus on CasEvac" is for these articles to be the catalyst for aircrew- and medic-training sessions and professional-learning opportunities. If our performance is improved or new tactics are developed in the CasEvac mission, then we're moving in the right direction, and we achieve mission success.

Take a look around your squadron and ask, "Are we doing everything possible to take care of our people?"

ORM—Moving Forward

By Ted Wirginis, ORM Coordinator, Naval Safety Center



Will you be involved in a mishap today? What are you doing now to prevent one from happening? The answers to these questions depend on how you manage risk. We're working to provide the tools and resources to help you. Here's an update on our operational-risk-management program:

Training and education. Eight online courses are on the Navy Knowledge Online website, and a two-day ORM Application and Integration class is offered monthly. The current ORM instruction, OPNAVINST 3500.39B, requires a minimum of one officer and one senior enlisted as ORM subject-matter experts (previously known as trainers) and one ORM manager (XO). The two-day ORM Application and Integration class is a prerequisite for your command SMEs. You can request a quota for the class on our ORM webpage at: **http://www.safetycenter.navy.mil/orm/**.

You also can find other ORM-related resources to supplement your NKO online courses on this website.

Additional ORM training aids and GMT will be available in 2007, as the Center for Personal Development (CPD) incorporates ORM training requirements.

ORM Instruction. The ORM instruction update will be completed this September. Look for changes in these areas:

- Required training and periodicity
- Assessment criteria and responsibility
- Integration requirements and guidelines

ORM Assessment. What is your unit's ORM posture? How well has your unit assimilated the ORM process into its everyday operations and functions? Your unit eventually will be evaluated on its integration and application of risk management on and off duty. We're in the process of defining the metrics and who will do the assessing.

ORM Advisory Group. There is fleetwide application of ORM; however, it is inconsistent and nonstandard. The Advisory Group will continue to refine ORM training, expectations and metrics used to standardize unit and individual risk-management integration.

Culture and Behavior. We've been programmed to continue some obsolete operations and/or training to manage risk posed by the enemy or red threats. Unfortunately, we lose resources, people and material, from the blue threat: The losses are a result of our actions.

Think about how many aircraft we have damaged or personnel we have injured while performing tasks with a low risk-assessment code (RAC): tasks that should have minimal risks. We need to change our culture to one that trains against both the red and blue threats.

This issue, which focuses on CasEvacs, highlights the risks involved in getting our injured personnel to the next level of medical care. While we fly these missions, we sometimes accept unnecessary or questionable risks. Let's not compound the situation.

Mr. Wirginis can be contacted at: **theodore.wirginis@navy.mil**, or (757) 444-3520 ext. 7210 (DSN-564).

The Golden Hour

CasEvac stands for casualty evacuation. This term applies when injured military or civilians are emergency evacuated from a war zone. Air CasEvacs are almost exclusively flown by helicopter. The aircraft may have limited medical equipment, and the corpsman only may have basic medical training. The aircrew quickly must transport the injured personnel from the battlefield to the nearest medical facility. The crews are armed, and they assume much more risk to carry out this mission. Getting an injured person advanced medical care within one hour greatly increases their chances of survival; Doctors call this the Golden Hour:—Ed.

A Flight Surgeon's Perspective

By Lt. Cari Matthews, MC

The war zones of America's inner cities provide the training grounds for the battlefields of Iraq. These settings offer the best preparation possible, with some limitations, for the horrors of modern war.

Before I participated in CasEvac missions in Iraq, I learned to treat the victims of gunshot wounds and traffic wrecks on the streets of Atlanta, Washington, D.C., and New Orleans. There are differences, of course, but the system we use to rescue those wounded in OIF is modeled after American emergency medical response.

Photo by PH3 Lisa Hennings.

Like our civilian counterparts, we strive to get the victims of accident, injury and terrorism to the operating room or the intensive-care unit within the first hour they are injured. This Golden Hour provides the best chance of survival. The infrastructure in war-torn Iraq doesn't support a telephone network, and the roads are much too dangerous for an effective ground ambulance, so we use our air assets.

My experience is with the Marines. I am the flight surgeon for HMM-161, the Greyhawks. From August 2005 to February 2006, we provided daytime, casualty evacuation and transport of medical emergencies in the Al Anbar province of Western Iraq.

Describing the mission is deceptively simple. Find the victim, fly in and rescue him, then keep him alive in the back of the helicopter until we can get him where he needs to go. The concept is basic, but the reality is much more difficult.

The CH-46Es flown by our squadron initially were not intended to be used for medical missions. Unlike the Army, which has dedicated medical air assets with special equipment to provide complicated oxygen delivery and even defibrillation, our aircraft are utilitarian. Whatever medical equipment we have in the aircraft, we bring on ourselves. We have to frequently modify the configuration in the back of the aircraft to accommodate litters for our patients, and then switch back to general support, VIP transport, and cargo-support functions. Unlike the Army's medical helicopters, our aircraft are armed with .50-caliber machine guns, and we do not have the special designation and protection of a medical vehicle under the Geneva Convention. This situation is a mixed blessing in a war where the enemy prefers targets they perceive as more vulnerable, such as rescue aircraft.

We have rudimentary medical equipment available to us in the back of our helicopters, but we have learned to use this equipment to work miracles. When our equipment fails, our instincts and training aid us in providing succor to our fallen heroes. We can breathe for them, with the aid of tubes in the throat and plastic devices that fill the lungs with air. We can give fluids to help restore circulation in those who have lost blood. We can staunch bleeding wounds, dress severe burns, splint broken limbs, and provide medications to ease pain or anxiety. In doing all these things, we supply comfort and hope in abundance.

Our CasEvac missions have provided care to hundreds of people: fallen Marines and Soldiers, Iraqi allies, American and allied-nation civilians, local wounded who have been devastated by acts of terror, and those who just have shown up on our doorstep asking for help for their ill children. Like all medical providers, we have taken the Hippocratic oath to provide care for all, regardless of who they may be, so we even risk our lives to save injured enemy combatants.

Perhaps nowhere else in our military today is the joint participation of our Navy and Marine Corps team better exhibited than with CasEvac. We have integrated two completely different missions, medical care and aviation-assault support, into a single system. Navy corpsmen, nurses, and physicians artfully work alongside Marine aircrew and pilots. We could not keep people alive without the Marines to fly them to their next destination. The Marines rely on us to provide the care that will sustain these lives through the gut-wrenching airborne moments.

The helicopter aircraft commander (HAC) assumes ultimate responsibility for the safety of every person on the aircraft. The medical providers in the back must keep the pilots updated on the status of the patients. If a patient

becomes critically ill and precious seconds will make the difference in saving a life, the HAC will divert to the closest facility, not necessarily the one with the most sophisticated care available.

The aircrew play a pivotal role in the mission by directing the placement of patients inside the aircraft. They must know how to safely load them, with the most critical patients being placed in an accessible spot with easy egress. With mass casualties, aircrew direct the loading of patients in the most sensible and safe order. To my knowledge, the only time a patient ever was injured during a mission was when one of the corpsmen failed to listen to the direction of a crew chief. The crew chiefs are in charge of the back of an aircraft, and a CasEvac mission is no exception.

The brunt of the medical mission, however, falls on the backs of the CasEvac corpsmen. These young Sailors, who make up for in heart anything they may lack in refined medical knowledge, have duties among the toughest. Very few of them have had advanced lifesaving training, and, for many, this is their first assignment in the Navy.

We had a mere 40 CasEvac corpsmen with our squadron, and they manned aircraft 24 hours a day for seven months. They flew in extreme weather and daily risked their lives without complaint. If necessary, they ran to rescue the wounded on the ground, while rounds were being fired overhead. They flew despite many internal emotional battles with the ghosts of traumatic experiences. They witnessed some of the most horrifying acts of violence our generation ever will see. They are true heroes. The only reward they ever asked for was the honor of looking a wounded Marine in the eye, holding his hand, and telling him, "You did a great job; now we're going to get you home."

Lt. Matthews is a flight surgeon with HMM-161.

A Corpsman's Perspective

By HM3 Jefferoy Kennedy

After checking in to HMM-161 for duty as a squadron corpsman, I was sent to Yuma, Ariz., for the Desert Talon course. I was joined by another squadron corpsman scheduled to fly CasEvac missions for OIF-II. We were put on a regular rotation for flights that, among other tasks, practiced taking-on and off-loading patients. This syllabus was geared toward flight duties, and we practiced taking care of patients in a training setting in the back of the CH-46E. The aircrew also got experience having patients on board while working alongside corpsmen.

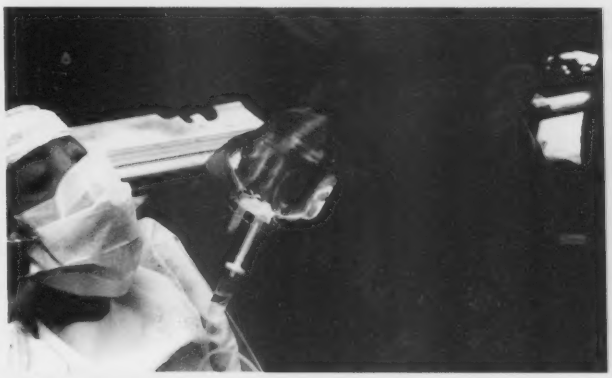
The class reviewed the types of injuries that had been reported during OIF-I, how we would treat them, and what we could or couldn't do. Each CasEvac mission is different, and we discussed what to do in a variety of situations. At the end of the week, we were given a complete tour of the CH-46E, and received emergency-procedures training.

We then went to the dunk tank at MCAS Miramar, where we received swimming training. We earned the same swim qualifications required of all aircrew, including getting checked out in emergency-ditch procedures.

We then joined the last of HMM-161, and left for Al Taqqaddum, Iraq. A couple of months later, we took over the CasEvac mission from the Army. I regularly was paired with a highly qualified corpsman, HM3 (now HM2) Christopher Pair. He helped continue my training in emergency medicine and procedures.

The setup for each day was routine: After morning muster, the previous crew took all the gear off the aircraft and staged it at a designated spot. We then went over what gear each section would need. A section consisted of two aircraft, with three sections total. We would have the oncoming CasEvac team leader for the next shift attend the aircrew brief and note the aircraft and section assignments. We also made sure we had the right medical equipment on board.

In the first couple months, when the sections and aircraft would change their lineup, the corpsmen would trade out the required gear (usually just from one section leader to another). Later, when the temperature rose to around 120 F to 130 F, or higher, we noticed the batteries on the suction machine and vital-signs monitor would start to die toward the middle and end of the day shift, even though they were fully charged the night before



and sometimes not used. We decided to keep both machines on a rotating charge with their respective charging devices.

If a CasEvac mission was called, the CasEvac bell would be rung, and the maintenance chief would notify everyone on the radio. Our objective was to make sure the turn up and takeoff was fast, efficient and safely done. That first hour after the injury occurs is extremely vital to the patient.

The night shift also included a regular mission, later to be known as the milk run. Before the night shift aircrew got their brief, patients who needed transport or those who later might need to be moved to a higher level of care (but were stabilized enough to wait a few hours), would be identified. The section leader would be given a time by the direct-air-support center (DASC) to start the milk run. Injured patients from TQ SSTP, Blue Diamond, Camp Fallujah, and Camp Ramadi medical would be transported to the CACH in Baghdad, or to the Army surgical center in Ballad, depending on the patient's needs. We also would transport personnel who had finished medical treatment in theater and needed to return to their respective units. They would get dropped off at any of the medical units mentioned above for further transport via ground units. The milk run would last anywhere from an hour to six hours, depending on the patient load and how many places and trips it took to get the mission done.

When we were not flying, Cdr. Boyle, a surgeon from the SSTP, liked to visit once or twice and week and show us new and better ways of doing emergency medicine. We welcomed his training, knowing it would help us become better corpsmen.

HM3 Kennedy was with HMM-161.

Weather or Not to Press

By Capt. F. Phillip Peche, USMC

Photo by Cpl. Alicia M. Garcia. Modified.

When the ready-room phone rings, the ODO answers and holds out his arm parallel to the deck, with his fist closed and palm facing down. Everyone and everything stops; there is instant silence as everyone waits in anticipation. A thumb up means urgent CasEvac; a thumb down means false alarm. In this case, we get a thumb up.

Everyone sprints, the CasEvac bell rings, APUs (auxiliary-power units) light off within seconds, engines start and rotors turn. Runners, dispatched with paper copies of the 9-line, pass the mission to the HACs through the pilot windows. Mercy XX up (Tycoon XX up, if launching with an escort), taxi, takeoff—usually within five to seven minutes of notification. We expect 99-percent torque to the pickup zone, load casualties, lift, 99-percent torque to the drop-off zone, RTB, refuel, and stand by for the next mission.

"Zero to hero in six minutes" is the mantra of the CasEvac pilot. Weather minimums, degraded ASE (automatic stabilization equipment) and flight-minimums SOPs can be waived with battle-captain approval.

We've found that some of the best ORM comes in the form of what we call "debriefs from the floor." We have two briefs everyday: one for the day crew and one for the night crew. Each brief has an intel and friendly situation update, an ODO, MC or mission coordinator (to cover such things as the line-up and impromptu section standardization in cases where crews launch without briefing together), flight lead, and cockpit briefs. The first part of the MC brief is called "pilot debriefs from the floor," also known as lessons learned or ready-room confessionals. That's right, twice a day we get lessons learned. Below is just one such lesson.

Weather is bad: Torrential rain and multiple low-cloud layers line the sky in all directions. Our home base observes marginal VFR. Our destination reports IFR. It's about 11 p.m., with zero-percent illumination: a true low-light night. The phone rings—urgent CasEvac. The pickup is a Level 2 medical facility, and

Photo by PH2 Jeffery Russell. Modified.

the drop off is a Level 3 medical facility. Crews man up, and we launch as a section. I'm in the Dash 2 as the commanding officer's copilot. I'm on the advance party for the squadron, and, as a flight leader on the night schedule for some time, I'm familiar with the night environment in the AO. This is the CO's first night flight since the squadron had taken over the mission less than two weeks earlier. Tonight's flight is supposed to be what we call a "hospital run," moving routine MedEvacs in and around the different hospitals in the AO, and flying return-to-duty personnel back to their units. However, this flight is not to be a hospital run.

The flight into the Level 2 medical-landing zone (LZ) is uneventful. The casualty is loaded on the lead 46, and we take off for the Level 3 facility, 35 miles to the north. As we cross north of the highway connecting Baghdad and Fallujah, the visibility deteriorates to less than a mile. The illumination provided by the cultural lighting of Baghdad and the outlying areas is behind us. The ambient conditions yield no visible horizon and scintillation through the NVGs.

The CO immediately suggests over the interflight frequency, "Let's look at diverting to the other Level 3 facility in the vicinity of Baghdad."

The section lead acknowledges receipt but says the weather looks like it is getting better to the north. In fact, the weather, while not quite 1,000/3, is not bad. The burn-through provided by our NVGs generates a partial horizon. We arrive at the medical LZ, and our corpsmen offload the patient. Now it is time to RTB.

Airfield metro, collocated with the Level 3 facility, is forecasting rain, reduced visibility, and multiple cloud layers beginning at 1,000 feet, with scattered clouds at 500 feet. The weather is coming in, but they are predicting a lull. They also report the current weather to the south is VFR, and, once we pass through the local bands, the weather will improve.

There is another problem though. En route to the Level 3 facility, my attitude indicator sticks a couple of times. I troubleshoot the problem, and the indicator appears to be fixed. We reposition to the fuel pits, take on fuel, and depart. The rain and low clouds significantly reduce visibility, and our section lead diverts the flight back to the airfield. We land at the medical pad to wait out the weather, further analyze the situation, and identify the hazards. Metro observes marginal VFR at the field, scattered low-level clouds, and a 6,000-foot ceiling.

Our section again takes off for home base. One minute into the flight, a master-caution light illuminates—a transmission-chip problem. We make a precautionary-emergency landing (PEL) to a taxiway at the airfield. After we check the chip detector, clear the small flakes, ground turn for 45 minutes, recheck the chip detector (no chips), and refuel, we determine the aircraft is safe to fly home.

The weather, however, has gotten worse, but metro still is reporting VFR conditions at home base and all points south. We agree the ideal solution would be to separately file IFR, but filing IFR in a helicopter is not a possibility in Iraq: There is no established low-altitude IFR structure, and many of the instrument approaches are not fully certified.

Following a discussion among the section leader and the CO, we're to RTB. Our proposed flight path is south to Baghdad and across to our home field. This route takes us toward cultural lighting, thus providing a visible horizon and additional diverts en route, should we have another chip light (we identify the most dangerous hazards, implement controls and make prudent risk decisions). It appears we have dodged the weather by flying below the lowest cloud layer, but then we enter inadvertent IMC and lose contact with lead—for the first time.

I'm at the controls and turn away from lead, climb to 1,500 feet (our briefed procedure), and break out between cloud layers. I ask for barometric altitude-hold on. The CO and I adjust the low-altitude warnings on our radar altimeters to provide an early indication of

ORM does not end in the ready room. Time-critical ORM is a continuous process that facilitates superior decision-making throughout mission execution.

vertigo and an unintentional descent. We also ask lead to turn his blade tip and IR position lights to maximum brightness. Flying IMC in a combat zone is not a comfortable feeling.

We spot lead; he is a little lower than us. We give him a steer and join on him. The weather appears to be marginal VMC direct to home base, but that path will take us through a high-density safire (surface-to-air fire) area. After weighing all the risks, the section leader decides to press south to Baghdad, as briefed, back into the weather but in the direction of cultural lighting.

Lead begins a descent to get under the clouds; we penetrate. We're now flying with one rotor separation in IMC. Although I'm an experienced pilot, I've never flown a helicopter-section approach or been in the clouds as a flight in this type of weather.

I call over ICS to the CO, "I would be more comfortable with you flying."

He replies, "Roger," and we change controls.

In hindsight, this control change makes perfect sense. The CO, having been in this type of situation before, is much more comfortable flying at one rotor separation. He trims the controls for straight and level flight. He's flying "against the control pressures," so, in the event we lose contact with lead, taking separation and preventing spatial disorientation will be a less difficult endeavor.

Unfortunately, we again lose contact with lead at one rotor separation. The CO takes a 20-degree cut away from lead and begins, for the second time, our inadvertent IMC, lost contact, and break up. We reacquire lead within a few seconds, and join back up.

On ICS, I say, "Sir, I think we should dissolve the flight and get single-ship approaches back to home base."

About then, we see the weather clearing to the southwest—direct to our home field. Immediately, the CO radios, "We are going direct to home base."

The flight turns right, heads west, climbs through the clouds, and breaks out in between layers. The weather isn't great, but it is much better than it was, and we're able to back off a few rotors from lead. The CRM in my cockpit has been superb thus far, and we are almost home.

Passing Fallujah, lead checks in with DASC (direct-air-support center), and all is quiet. However, we hear another flight of 46s check in on the DASC frequency; they are in Fallujah. Great, more traffic! They report lifting and are headed to our home field. We contact them over DASC, and they are 500 feet and below; we are at 1,500 feet. At least we have altitude deconfliction, but what will happen when we descend to land? Where are they? We acquire visual contact of the other flight through a break in the cloud layer but then lose them.

After crossing the Euphrates River, passing north of a couple of switchbacks in the river that is another high-density safire area, we descend through an opening in the clouds. We check out with DASC and check in with tower. The other flight does the same, and they report an identical entry. The geometry between the sections mitigates the potential of a midair, provided each section maintains their briefed routes and holds their current airspeeds. We are descending to their altitude, while ensuring lateral separation from their reported position.

Another flight of 46s checks in with tower, and they are on a left base for the right parallel runway. We are on a long final for the left parallel, and the third section is on final for the left parallel. No section has a visual on the other, and weather and visibility are degrading rapidly. Everyone is diverting to our home field before the weather closes in.

I hear, "Traffic in sight," over tower frequency.

At least one section has someone in sight. Shortly thereafter, our lead reports both sections in sight over tower's frequency, and we now see one of them. We appear to be home free, but we still don't see the section on base for the right parallel. I see lights heading toward us. I come on the controls, pull power, and turn away from the traffic. The CO and I simultaneously look under our NVGs and surmise that the lights actually are vehicles on the ground. The section on base is in front of us, and they are no factor. I briefly turn on the overt anticollision lights for good measure. We are on short final. For one of the few times in my aviation career, I truly appreciate

the words "short final." We are over the runway, on the ground.

Rolling into the fuel pits, we check in with the ODO, who asks, "How is the weather?"

Without skipping a beat, the CO retorts, "Dogcrap!"

On deck, many crises have been averted; the calm and calculation we displayed in the air have manifested into emotional banter over the ICS. We have made it. With refueling complete, we air transition, taxi back to the line, shut down, and debrief in the ready room. While we are gone, one of our sections launches on an urgent CasEvac. The CO contacts them, tells them to divert to home base, and they drop off their casualties at our home field's medical pad.

The copilot of our section's lead aircraft just had finished his night systems-qualification syllabus on a training flight the previous evening. This was his first night-combat mission. He was visibly shaken, as we all were. All I could think was, "Man, I'm glad I was flying with the CO and not him."

Our lessons learned to the day crew were:

ORM does not end in the ready room. Time-critical ORM is a continuous process that facilitates superior decision-making throughout mission execution.

Metro here is not quite as robust or capable as it is in CONUS. Also, real-time weather reporting lacks accuracy, due, in large part, to the unpredictable nature of the weather in this region.

In reduced-visibility situations, turn up the appropriate exterior lighting on all of the aircraft in the flight to make it easier to fly formation and see lead.

Consider single-ship operations in bad weather for urgent CasEvacs, or have lead stay higher over friendly territory in radio contact with the CasEvac aircraft.

If you don't have the weather, don't press the situation. Bring urgents (patients) back to the Level 2 medical facility at home field for possible ground transportation.

While NVGs allow you to look through some clouds and obscurations, they can cause you to fly into IMC conditions without realizing it. When operating in marginal weather, your scan must include looking under your NVGs to see inadvertent IMC situations.

Discuss contingencies thoroughly during flight and cockpit briefs.

Master the basics: Sound and precise air work, instrument scan, and ORM and CRM are the most important aspects of night and combat flying. On today's battlefield, the chances of crashing your plane are much greater than the chances of being shot down by the enemy.

Capt. Peche flies with HMM-364.

THE MAXIMUM ALLOWED

1stLt. Robert L. Boyce, USMC

I was the boot on a combat mission flying at 300 feet, 80 knots, with no engines: classic case of "What now, lieutenant?" Before I try to answer that question, let me provide some background information.

I joined the "Gunrunners" of HMLA-269 in Iraq, just having completed AH-1W FRS training a few months earlier. My area fam around Al Asad airbase was my first flight since leaving HMT-303. During the next month and a half, I flew a combination of training flights and combat missions totaling about 20 hours.

On the Fourth of July, I was scheduled to fly medevac escort for the Army UH-60s stationed at Al Asad. I staged my gear in the rear seat of the aircraft before assuming the strip alert. Our loadout was 400 rounds of 20 mm, seven 2.75-inch HE rockets, two TOW, and two Hellfire missiles. We were just under max-gross weight, and it was a typically hot Iraqi summer day.

About six hours into our 12-hour strip alert, we were called to fly an escort mission to Balad, one of the two trauma centers to which we regularly flew our escort missions. Flight time was about an hour from Al Asad. Onboard the UH-60 were two priority and three routine patients.

We linked up with the 60s and launched for Balad. About 10 minutes out of Al Asad, we ran into a dust storm, which reduced our visibility to less than a mile. The 60 initiated a climb, and we leveled out at 4,000 feet with VFR conditions.

Thirty miles from Balad, our No. 1 engine seemed to have a roll back. The engine torque dropped off, and the power turbine (Np) also dropped to about 60 percent. As I felt the aircraft begin to settle, I saw the Nr needle drop. My initial response was something I had been drilled on and practiced over and over again: My hand on the collective followed the needle to preserve the turns. Simultaneously, the No. 2 engine surged to compensate, driving Nr back above 100 percent. The aircraft commander (AC) took controls in the front seat and got the Nr back under control. The master caution went off, and the AC called out we had a No. 1-engine chip. I checked for secondary indications, but the engine-oil temperature and pressure were normal; the engine had come back up to full power. I broke out the NATOPS pocket checklist and read over the engine-chip procedures. Throughout the remainder of the flight to Balad, I continued to monitor the engine instruments. I also passed the information to the AC because the front-seat cockpit in the AH-1W lacks a full set of engine instruments.

NATOPS said this emergency was a "land as soon as practicable." As we had briefed for this type of emergency, we would continue with the mission, as the situation dictated, in most cases. Balad was the nearest airfield and our destination, so we decided to continue on our planned course. With consideration to our need to extend flight, and we had no secondary indications our engine was failing, our AC decided to leave the No. 1 engine at full open. As we neared Balad and contacted their approach control, we asked the CasEvac commander if we could take the first approach. They told us to go ahead. As we began the approach, we rolled the bad engine down to flight idle in accordance with the NATOPS emergency procedures, knowing we could reengage it for landing.

The approach was uneventful, and we broke out with the runway in sight at about one-half statute miles. With the runway in sight, we asked tower for directions to the CasEvac parking, knowing the CasEvac 60 we were escorting would end up landing there for weather hold. After getting directions to the CasEvac line, we continued down the runway to make the turnoff so we could land and shut down. At 300 feet and approaching the line area, we reengaged the No. 1 engine for landing. About two seconds later, the engine seemed to roll back again. The No. 2 engine had picked up the load and sent the Nr immediately to the maximum transient limit of 110 percent. The AC pulled the collective to slow the rotor. As the power on the No. 2 engine was increased to slow the Nr with increased rotor pitch, it hit its MGT (measured gas temperature) or Ng limit. Consequently, the engine's MGT limiter, or over-speed protection, was activated, sending the Nr racing downward.

We were now 250 feet and 80 knots over several large, reinforced hangars, and various ground-support equipment. With the collective bottomed out, the AC entered the auto and rolled left to the only open space, a field of large gravel at our 10 o'clock, in the middle of the CasEvac line. The No. 2 engine relit at 100 feet, with Nr and Np on our only engine married up. From the flare, we rocked the skids level and accomplished a sliding landing with power from our good engine.

Throughout my flight training, I had been told all of our practice, training, and constant studying of NATOPS would pay dividends when a real emergency occurred. I also had been told time and again that NATOPS is not a replacement for good judgment. The initial brief I received when I joined 269 in Iraq dealt with the reality of how emergencies would be treated. Given a potentially hostile environment on the ground, the selection of available landing sites significantly was limited.

On this flight, a combination of NATOPS procedures and good judgment allowed us to complete the mission and land at a secure location. This event also drove home to me that a seemingly straightforward, relatively simple, flyable emergency, can rapidly degrade to a complex, nonflyable emergency with little or no warning.

1stLt. Boyce flies with HMLA-269.

CASEVAC In Country

By Maj. Tom Dolan, USMC and Maj. Martin Schubert, USMC

The Air Boss at our forward-operating base (FOB) just had alerted us of an urgent, casualty-evacuation (CasEvac) mission. It was an early February morning in western Irag when we began the information-gathering process. Our standard CasEvac package is a section of aircraft, consisting of one UH-60 Dustoff aircraft and one AH-1W Super Cobra to escort the CasEvac aircraft. Our escort crew had two majors, a pilot in command (PIC) with 2,400 hours and a copilot with 1,900 hours. Both pilots had essentially the same qualifications and designations. We were based near the Syrian border and had been flying in that part of the area of operations (AO) for almost seven weeks; we were very familiar with the routine.

Our higher headquarters just had finished their transfer of authority (TOA), so we continued to work with the new headquarters on how to conduct business; it takes time to build the situational awareness of all those new to the tasking process. We also were on the backside of a few days of bad weather that had restricted flight operations. At 3 a.m., the Air Boss entered our ready room to update us on the urgent CasEvac. The drop-off location was to-be-determined (TBD). We expected to make the normal 65-mile flight to Al Asad air base, the traditional CasEvac transfer point for patients requiring follow-on movement to a higher-level medical facility. The local weather looked good, with high clouds covering about half the sky, and no moon, making it a low-light-level night. At the midnight shift-change pass down, the off-going crew also mentioned some low-level fog about halfway to Al Asad.

The Air Boss passed information to the H-60 crew (call sign Leatherneck), who would fly the mission with us. We copied the information, but one thing was different this time: The destination was Tikrit, not Al Asad. We asked the Air Boss to confirm the destination with the tactical-air-command-center (TACC) battle captain; the Leatherneck pilots also checked through their medical channels. We broke out the map and spotted Tikrit in the upper right corner. We breathed a sigh of relief that at least we had found it on a map; no one in the flight ever had been there before. In the next few minutes, we confirmed with base that the destination was correct, and we gathered as much weather information as possible.

The map of Tikrit indicated several airfields, and we needed to confirm which one was correct before we launched. We then were passed a grid of the Tikrit FOB where we would deliver the patient and plugged it into the GPS. Showing 126 miles, we instantly assumed about a one-hour flight. The frontseat pilot again opened the map and did a quick route study. The route had a large lake along our direct course, with no towns, cities, or other marked hazards. We requested weather for the Tikrit area, which called for broken at 3,000 and 5,000 feet, overcast at 12,000 feet, with visibility five-to-six miles and haze. We learned the patient, a Marine, was having heart problems and needed to see a cardiologist; the nearest one was in Tikrit.

We talked among ourselves and with the Leatherneck pilots to determine the best course of action. We had a list of unknowns ahead of us to work through. First, we were leaving the Marine AO and venturing into an Army AO and FOB. We did not have an airfield diagram or any other information about the controlling agencies, such as approach control and the direct-air-support center (DASC). These agencies normally would be in a pilot-to-controller handbook. We had the weather for takeoff and at our destination, but what about the en route weather? We were essentially chasing the storm that just had rolled through our area the previous day. It took about 30 minutes to confirm the destination. We topped off on fuel in case we couldn't find the FOB, or if the FOB didn't have available fuel. The closest divert was 45 miles to the south at Balad.

We took off and joined on Leatherneck, who had an airfield card delivered to their aircraft just before takeoff. We talked briefly on the radio, got the tower frequency, and headed across the desert to Tikrit at 500 feet AGL. Fifteen minutes later, we checked out with DASC and switched to the next DASC frequency. Static

on the new frequency made communication impossible; we tried another frequency to no avail. We were now 25 minutes into the flight and about to cross outside of the Marine AO. The last cultural lighting we had seen was about 15 miles behind us, and the broken and overcast layers were now overhead. We found it hard to determine if it was haze or fog or both. The visibility just seemed to worsen the farther we pressed on.

The copilot in the front seat started to show signs of vertigo; he confessed right away, and we made a control change. As we tightened up the formation, we scanned for the horizon but couldn't pick up anything. Thick clouds started to pass by the cockpit. The rear-seat pilot made an ICS call that he also had signs of vertigo. We were in position relative to the H-60, but our nose was slightly high, and we were in a left turn. The rear-seat pilot just had given up the controls when he said, "I think the 60 has vertigo."

Photo by Cpl. Alicia M. Garcia.

Just then, the H-60 surprised us by turning on his infrared (IR) spotlight that was pointed to the left of his nose. Going from total blackness to the IR spotlight was like being inside of a brightly lit white balloon. The spotlight confirmed we were in a thick obscuration, and the orientation of the spotlight created a false horizon under the aircraft, about 45 degrees from the true horizon. For the next few seconds, we appeared to be suspended in this white goo until Leatherneck moved the searchlight directly under the aircraft. This action corrected the false horizon we were fighting, and we felt a quick sense of relief until he turned it off.

Switching back to total darkness, we again were fighting vertigo. The rear-seat pilot asked for the searchlight to come back on, and they immediately complied, while we made another control change. We now had a rectangle of IR light under the aircraft, which provided a false horizon—parallel to the real horizon—that we could reference without dazzling us and creating illusions. We were on the edge, and we still had almost 30 miles to go. At one hour away from before-morning-nautical-twilight (BMNT), we agreed, if we experienced more vertigo, we would execute our IMC break-up procedures, head to Balad, and rendezvous from there.

The IR searchlight worked well. However, as we approached the field, visibility once again dropped because a large trash fire was sending up smoke that was suspended by a large amount of moisture in the air. Finally, we had one more hurdle to overcome as we approached the airfield: finding pad at the combat-army-surgical-hospital (CASH), which happened to be unlit. After circling over the field and receiving several nondirective calls from the tower controller, we found the pad, and both aircraft landed. Once safe-on-deck, we agreed not to launch back home until the sun had started rising. Between transferring the patient and getting fuel at the forward arming and refueling point (FARP), we launched just before sunrise for an uneventful flight home.

We had a 4,000-plus-hour cockpit, with each having completed several WestPac deployments. We did a lot of things right and still found ourselves in a hairy situation. CasEvac escort is one of the enduring missions for AH-1W crews deployed in support of Operation Iraqi Freedom. Our first instinct when we get the call is to help get that Marine or Soldier to a higher echelon of medical care as soon as possible, and at all costs. Sometimes, though, we are faced with a difficult situation and relearn the hard way that destroying two multi-million-dollar assets and killing two crews and the patient is not worth the risk when the weather does not support the mission. ORM—use it because it works.

Maj. Dolan and Maj. Schubert are AH-1W pilots assigned to HMLA-369.

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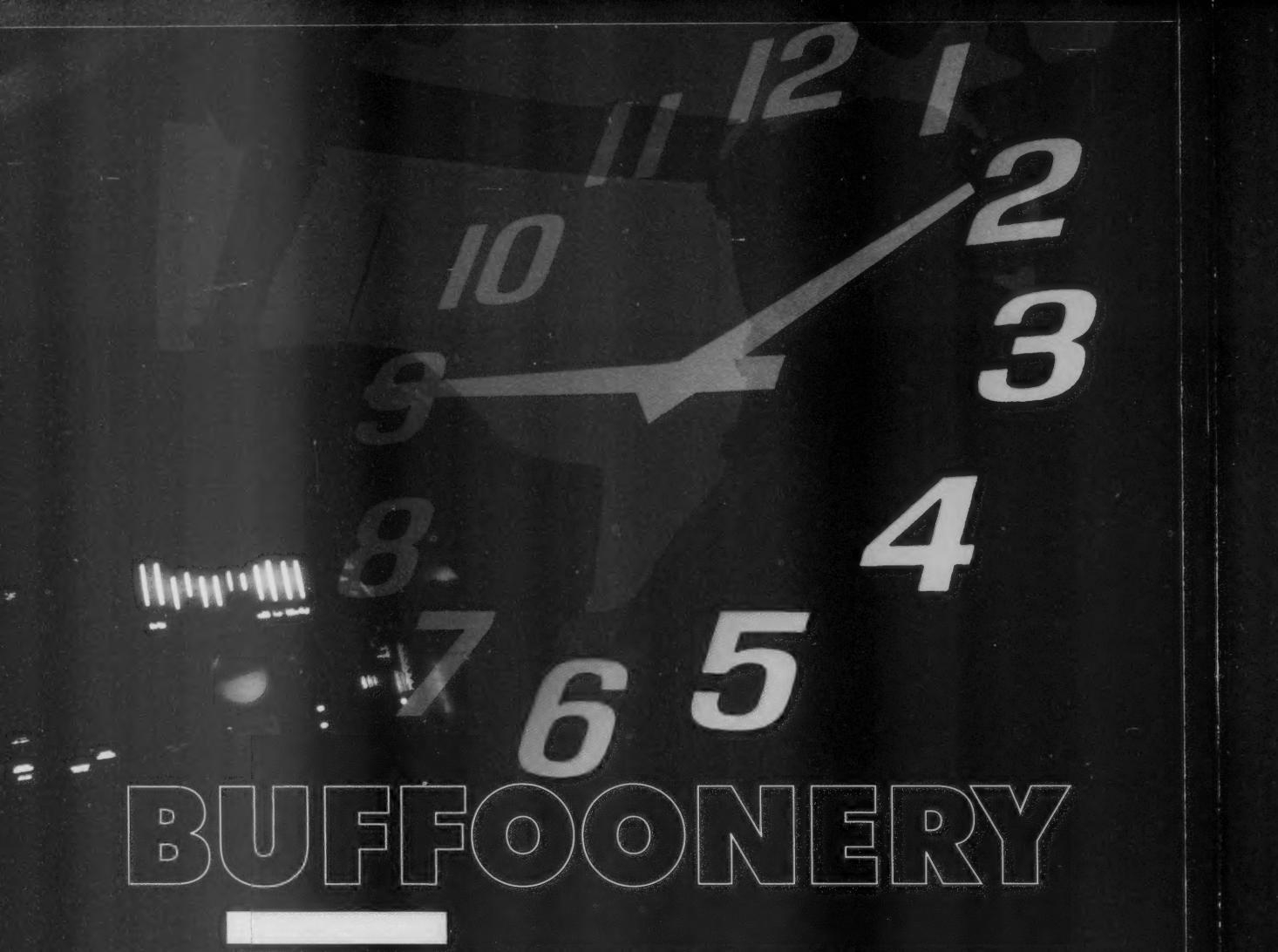
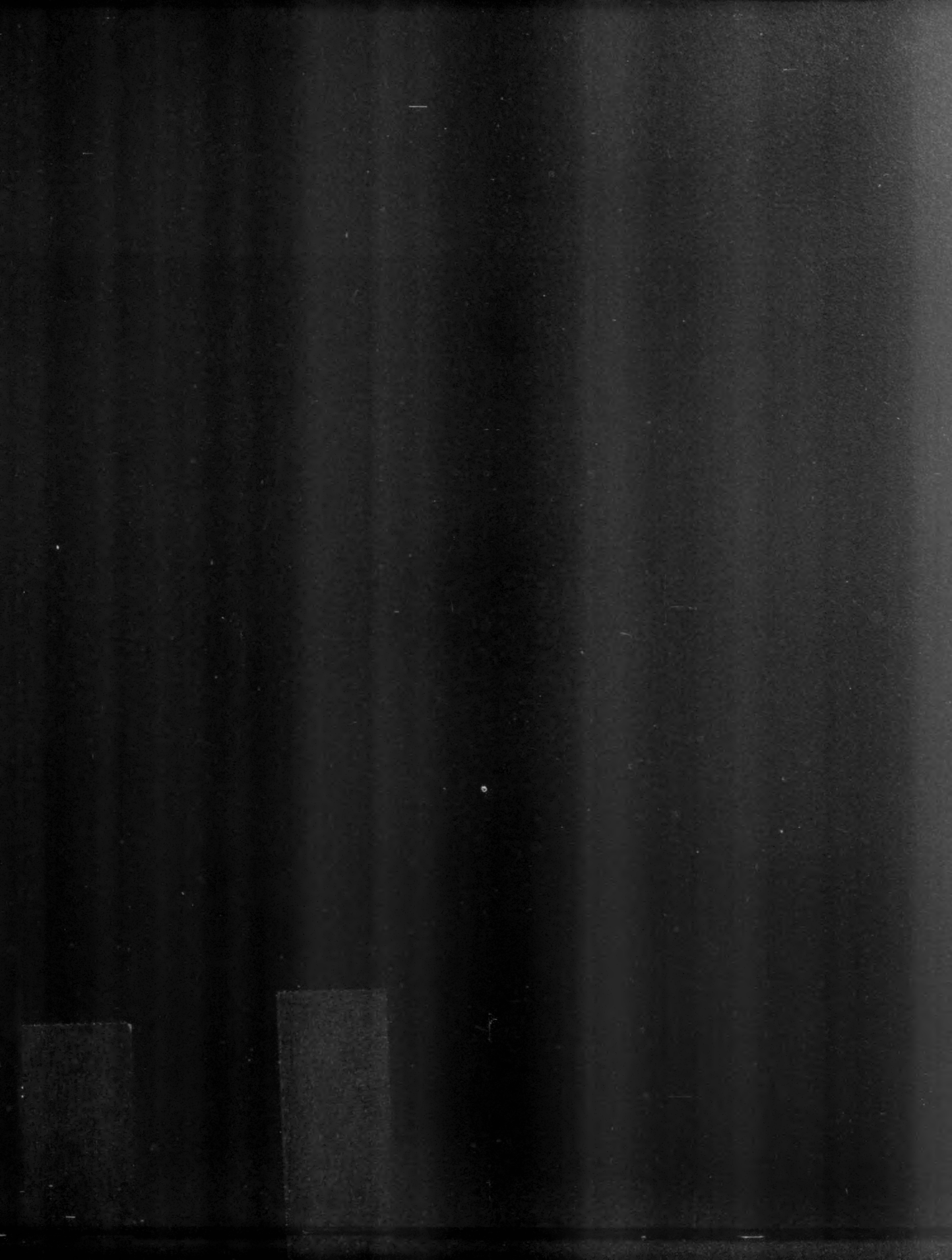


BUFFOONERY

Buffoonery—that's what's killing us these days. We've become quite good at taking out the bad guys, putting bombs through windows, and seeing it all on TV. We pride ourselves on projecting our power in a way that tells the world we're still No. 1. No one is better at this business than we are—of that, there is no question. So, why do we hesitate to apply the same amount of effort to the training environment? Isn't one of our favorite mottos that we "train like we fight"?



BUFFOONERY

By LCdr. Gabe Soltero

Buffoonery—that's what's killing us these days. We've become quite good at taking out the bad guys, putting bombs through windows, and seeing it all on TV. We pride ourselves on projecting our power in a way that tells the world we're still No. 1. No one is better at this business than we are—of that, there is no question. So, why do we hesitate to apply the same amount of effort to the training environment? Isn't one of our favorite mottos that we "train like we fight"?

The pressure to return to the ship, combined with the pressure we placed on ourselves to complete the mission, ultimately led us to head over the dark ocean.

I don't pretend to know the answer, but events from the other night were all too typical of the pressures we place upon ourselves to complete the mission—ORM be damned. Having recently graduated from aviation safety school, these thoughts of self-induced pressure were all too present in my mind as I shook my head in disbelief: Why are we doing this?

The mission wasn't an unusual scenario, and perhaps that's the scariest part. We had two helicopters forward deployed ashore from the carrier during a training exercise, simulating operations at a theater near you. The mission was a night combat-SAR exercise in the desert, followed by a shipboard recovery. This mission is perhaps the most challenging we train for. With that thought in mind, we planned accordingly, doing our best to avoid potential pitfalls.

The execution was far from flawless, but we made it happen and recovered the air-wing folks who'd been shivering in the desert for hours. Now came the easy part, right? All we had to do was get some gas and hustle back to the boat to make our overhead. Here's where we let our hubris get the best of us.

The mission had gotten off to a late start. We already were running behind schedule as we headed for home, and we still had to get gas before going feet wet. As our crew hustled to load all our detachment's gear on the two helos, we gassed up and got information on the ship's position.

At this point, we'd been flying for five hours and faced another 1.5 or so before we could call it a night. The previous day also had been a long one for both crews, with each logging more than eight hours.

Considering the gear we were loading and our fuel, we'd be at max gross weight for takeoff. The airfield gave us an updated position, using the card of the day, which jibed with what we'd gotten earlier in the day. But, here's the kicker; the ship's TACAN would not be operating because of an EMCON drill—a drill!

Here we were, tired from a long and difficult mission, late for our overhead, with a heavy aircraft, about to fly over 150 miles of ocean to a ship that would be hiding—on purpose. We voiced our concerns to the ground controllers at the field, who were on the phone with the boat. We identified this very real hazard, weighing the training value of an EMCON drill against the safe recovery of two tired crews.

Ground control relayed back something along the lines of "duly noted" and asked for an ETD, which, to us, translated as, "Why aren't you already on the way?" The pilots, all four of us safety-school grads, got the message.

The pressure to return to the ship, combined with the pressure we placed on ourselves to complete the mission, ultimately led us to head over the dark ocean. With a hard bingo set, we climbed to 5,000 feet, asked FACSFAC for vectors to the ship (which were about 30 minutes time-late), and continued outbound. Uneasy at the prospect of having to divert if we couldn't find the carrier, we joked about how this scenario would be great for an aircraft-commander board. We also hoped that the controller, who had given us the ship's position, had the same card of the day as we did.

About 25 miles out, the lead helo coaxed the carrier into talking to us on the radio. Relieved at having comms and a visual on the CVN, we set up for an NVG sidestep approach and recovered without incident. The time was 0145.

Why did we do this? Because we all want to be *that* guy. We want to be the pilot who can hack the mission and not let down the squadron. Doing otherwise would be perceived as a sign of weakness, either by our peers, ourselves, or our chain of command. It's how we're wired as aviators. It's also what sometimes leads us to make bad decisions.

We should have called it a night once we got to the airfield—which, by the way, is our home field—and coordinated flying to the ship the following morning. We didn't delay because our birds were needed for a mission early the next day. Our get-the-job-done breeding got the best of us. The carrier's unwise decision to have an EMCON drill while two aircraft flew to a spot in the ocean did not help matters.

Buffoonery: otherwise smart people making bad decisions. Let's not do this again, OK?

LCdr. Soltero flies with HS-4.

601, Are You OK?

By LCdr. Paul Lanzilotta

My crew was ending a short detachment to Savannah, Ga. The five of us were scheduled as Dash 2 in a section of Hummers leaving that afternoon for a quick ferry back to our home field. We had assembled in the morning, ready to fly home without any buffoonery.

Our NATOPS brief started on time, was thorough, and covered several contingencies, including aircraft fall out and backup plans. We walked through our detachment maintenance space to read the aircraft-discrepancy book (ADB), but also to say farewell to our hard-working Sailors who had provided 100-percent-up airplanes throughout the week. A couple of ADs played dominoes on a nearby table in a time-honored ritual.

As the senior crew member, I diligently tried to set a good example while reading the ADB, taking care not to rush. By chance, I had not flown in this particular aircraft throughout the week, so I was not as familiar with its history. As I leafed through the book, I noticed a consistent pattern of ICS gripes that had been signed off, with associated components shifted to different crew positions. I discussed the systems status with the maintenance-control chief and our XO, who had written the gripes and stood nearby, ready to man-up the lead aircraft. I would avoid the temptation to take a broken airplane flying. If there were ICS problems with the aircraft on man-up, then we would consider leaving the crew member with the affected station to ride the airlift home.

As I settled into my seat, I checked the ICS, and it did not work. After basic troubleshooting—simple disconnect and reconnect—I got it working. The air-control officer (ACO), sitting next to me, was cold mike only and would have to use his foot pedal or call-switch to talk. I discussed the situation with the aircraft commander, and we decided that, as long as we had ICS before taxi, we would take it.

We took off, using a standard rendezvous technique, and headed home, transiting the hour-long flight at FL210. Predictably, my ICS completely quit 15 minutes into flight. All of my communications to the cockpit had to be relayed through the ACO by yelling or writing it on a pullout greaseboard. The conditions weren't optimum, but we were a ferry flight, and we only were a little more than an hour from home.

The RO went forward to deliver a camera to the pilot, who wanted to take a happy snap of the lead aircraft. As he went forward, I scooted forward into his seat. I wanted to add warmth into the cabin by manually adjusting the cabin-temperature selector. As soon as I toggled up the switch, thick, white smoke filled the cabin. I immediately stopped toggling and yelled to the ACO to tell the pilots to turn off the air conditioning and don oxygen; he then donned his mask. I retook the center seat and began the ritual of switching ICS cords and fitting the mask to my face. The RO quickly appeared at the door with eyes like saucers and mimicked us by donning oxygen. I could not fill him in on the details without a functioning ICS, so he assumed we were executing a different procedure and turned off the avionics-cooling system. I busied myself by demonstrating to the ACO which page in the PCL we should view to back up the pilots. With the air conditioning secured as part of the emergency procedure, the airplane quickly depressurized.

At this time, the XO in the lead aircraft asked on TAC, "601, are you OK?"

Apparently, they had noticed our change in position and saw the front-end donning oxygen masks. I answered we were executing the "Smoke or Fumes from Air Conditioning System" emergency, and we would hang on their wing for the final 30 minutes of flight. I didn't notice at the time, but they didn't answer.

After the ACO and I coordinated with written comments back and forth, our lead asked again on TAC, "601, what is your status?"

I remembered the note from NATOPS located in the "Explosive Decompression" emergency procedure that emphasizes the loss of transmit capability for UHF-3,

4, and 5 when cabin altitude is above 15,000 feet. Our TAC was in radio 3, and we could not transmit on that radio anymore. With that reminder complete, I dialed TAC into V/UHF-2 and called our lead to reassure them. We completed the flight with no other CRM challenges, but I walked away with more lessons in my "experience bucket" and maybe a little less stuff in my "luck bucket."

"Writing notes to coordinate" in the event of ICS failure can be more difficult than you might expect. Writing notes is often mentioned as a comm alternative when we get to ICS failure in the briefing guide. While wearing oxygen masks in the back of an E-2, writing with your right hand on the grease board to your left is close to impossible. Legibly writing with your left hand, with a grease pencil, when you are naturally right-handed, also can take more time than you might expect in an emergency.

I was reminded that NATOPS knowledge could be handy, even when the emergency you're handling is not specifically addressed in NATOPS. I submitted a change to our NATOPS PCL after the flight, which adds the note regarding UHF-3, 4, and 5 into all procedures in which depressurization is expected, not just "Explosive Decompression." The reminder would have been beneficial during our flight. I am sure someone else would appreciate that note if they find themselves using the emergency generator, depressurized, and above 15,000 feet, with only V/UHF-1 to use for transmit.

I was reminded that solid CRM can win the day every time there is a high workload, nonstandard situation, or an emergency procedure in progress. My ACO quickly took the reins when we had our mini-event, which was exactly what the PIC and I expected. We executed in accordance with our NATOPS brief, and we backed up each other. We used mutual support within our section to maintain overall situational awareness. Most importantly, we landed with a mild story to tell the skipper, instead of something more colorful.

LCdr. Lanzilotta flies with VAW-121.

Concur with the NATOPS change. Although everyone is aware you lose UHF-3, 4, and 5 during decompression, it would be to everyone's benefit to include the note in emergency procedures where decompression occurs.—Lt. Angela Domingos, E-2 analyst, Naval Safety Center.

First Order of Business:
"Two New Tires... Please"

By Ltjg. Paul Oyler

Just one month after arriving at my first fleet squadron, I flew an offensive-counter-air (OCA) hop as Dash 4 of a mixed division with our sister squadron. The weather had been terrible all weekend, but it was sunny and warm on that Monday morning in August. I was fresh out of the FRS and thrilled to be working on my strike-fighter weapons and tactics (SFWT) level II qual.

The brief was thorough; I would be flying on my XO's wing. The XO took time after the brief to make sure I was comfortable with the plan and had answered all my questions. The man-up, start-up, launch, and mission went off without a hitch. I was exhilarated as we headed home. I had managed to maintain sight and mutual support for the entire flight and had effectively employed simulated weapons against multiple targets—just as I had been briefed. I felt great.

The division recovered to NAS Oceana in a right echelon, parade formation for a four-second break. I broke, dirtied-up, went through my landing checklist, and flew the ball to touchdown on runway 5L. I landed about 1,500 feet behind Dash 3. After touchdown, I extended the speed brake and applied gradual aft stick to help decelerate. Just as I passed the short-field arresting gear at about 100 knots, I applied the brakes. The jet did not respond; the brakes felt mushy. I pushed the pedals all the way to the floor, even stood on them, and still nothing happened. I released the pressure and pumped the brakes a second and third time. The pedals again went all the way to the floor, and the jet did not slow down.

The distance between Dash 3 and me rapidly was closing, though he had moved to the right half of the runway. I decided to try the emergency brakes. I released the brakes; grabbed the yellow, emergency-brake handle palm-up; and pulled it out to the detent.

I then reapplied the brakes. No sooner had I applied pressure when I heard a bang and felt the jet swerve hard left. I realized I had blown the port mainmount, so I applied more pressure to the right pedal to counter the significant swerve induced by the tire failure. Another bang and sudden deceleration told me I just had blown the starboard mainmount.

Even though I had blown both tires, I breathed a sigh of relief, knowing the jet now was controllable, decelerating rapidly, and tracking straight down the runway again, about 20 feet left of centerline.

I told tower I had experienced a brake and tire failure and would need a tow as I taxied the jet at less than walking speed off the runway at the 3-board. Tower quickly responded. They had seen the tires fail and were sending a tow and a cleanup crew to remove the remains of my tires from the runway.

As I rode in the base-ops truck to the hangar, I had a sinking feeling. I was sure I had made a mistake or overlooked something critical during preflight. Maybe, I had not executed the appropriate NATOPS procedures? I must have done something wrong. As soon as I got to the hangar, I grabbed my pocket checklist and went through the procedures. I had experienced what I perceived to be a brake failure. I reviewed the procedures and confirmed that I, indeed, had executed them appropriately.

In the ready room, the discussion already was well underway when I finally arrived. Everyone agreed you never should troubleshoot a brake problem on deck. In my situation, the safest course of action would have been to advance the throttles and go flying again; I immediately conceded the point. Fuel had not been an issue, neither had airspeed or runway remaining. My inhibition toward passing another aircraft on the runway was unwarranted, considering there was plenty of room to pass Dash 3 on the left, even had I reached him before getting airborne.

Maintenance inspection and troubleshooting revealed no failures in the anti-skid system. The lack of braking action I had experienced was attributed to my flight being the first after a weekend of very heavy rain, which had soaked the brake pads.

The "Brake Failure" emergency is something normally associated with flight-deck operations. This experience proves, however, that a brake failure at high speed, which does not involve a loss of directional control, warrants the same initial immediate action seen elsewhere in NATOPS, "If detected after touchdown and flyaway airspeed available-Execute Emergency Takeoff Procedure." Next time, I will do just that.

Ltjg. Oyler flies with VFA-105.

Photo by Matthew J. Thomas. Modified.

Danger in the Comfort Zone

By LCdr. Tariq Rashid

Yes, I realize flying a helicopter from the back of a pitching and rolling small-deck ship at night, and in other-than-optimal weather, is an unnatural thing to do, but it's kind of cool.

We all have this sort of intellectual understanding that what we do is dangerous. But, every now and then, you get a feeling that runs through you and chills you to the bone, and you say to yourself, "I could get killed doing this." From time to time, we see that naked razor's edge that separates the dead from the living.

I was the OinC of an SH-60B detachment operating aboard a frigate in the seas west of Scotland in support of a major international exercise. November in the northern Atlantic means persistent bad weather, which already had led to the cancellation of many events. High winds had made it impossible to obtain relative winds within the envelope for day or night operations. This condition is, of course, not news to anyone who has deployed to these waters. Finally, one night, the weather abated, or so we thought.

On the second sortie of the night, we pushed about 50 miles north of our force to update the position of the Opfor. You couldn't have asked for a better night: The northern lights were shimmering green through our NVGs, and the navigation lights of the Opfor ships were visible 20 miles away.

Flying in a LAMPS paradise, we decided to head south of our own force to look for lurkers. About 10 miles south of mother, we saw a band of squalls that I didn't like the look of. What just moments earlier had appeared like an expansive and open sky, suddenly became a canyon of dark clouds filled with torrential rain and 50-knot winds. The mountainous islands to our east and west, which seemed distant and beautiful when visibility was 20 miles, became ominous and deadly giants, lurking hidden beyond the next squall.

How had the weather deteriorated so rapidly and, more importantly, without our notice? Within 10 minutes, the ship was reporting true winds of 50 knots. The weather was not over the ship yet, but with 50 knots winds pushing, it soon would be.

We had more than an hour of fuel above our minimum on-deck load, so we were not in extremis. We suddenly were faced with a decision. As I looked south, it was obvious the ship couldn't outmaneuver the weather. The flight deck beckoned me. Should we make a play for recovery before the weather got worse? Should we try and wait out the weather? Would conditions clear as rapidly as they had deteriorated? What about a divert to the field 50 miles away? Each action has a consequence; some doors open, and some doors close.

All naval aviators are taught the principles of operational risk management, and most could state the five steps of the ORM process while half asleep. While ORM is a great safety-planning tool, the usefulness of the ORM principles for decision-making during routine or extraordinary circumstances may have been undersold. It's relatively easy to decide when the choice is between an obviously benign alternative and a negative alternative. Should I try a running landing to that open

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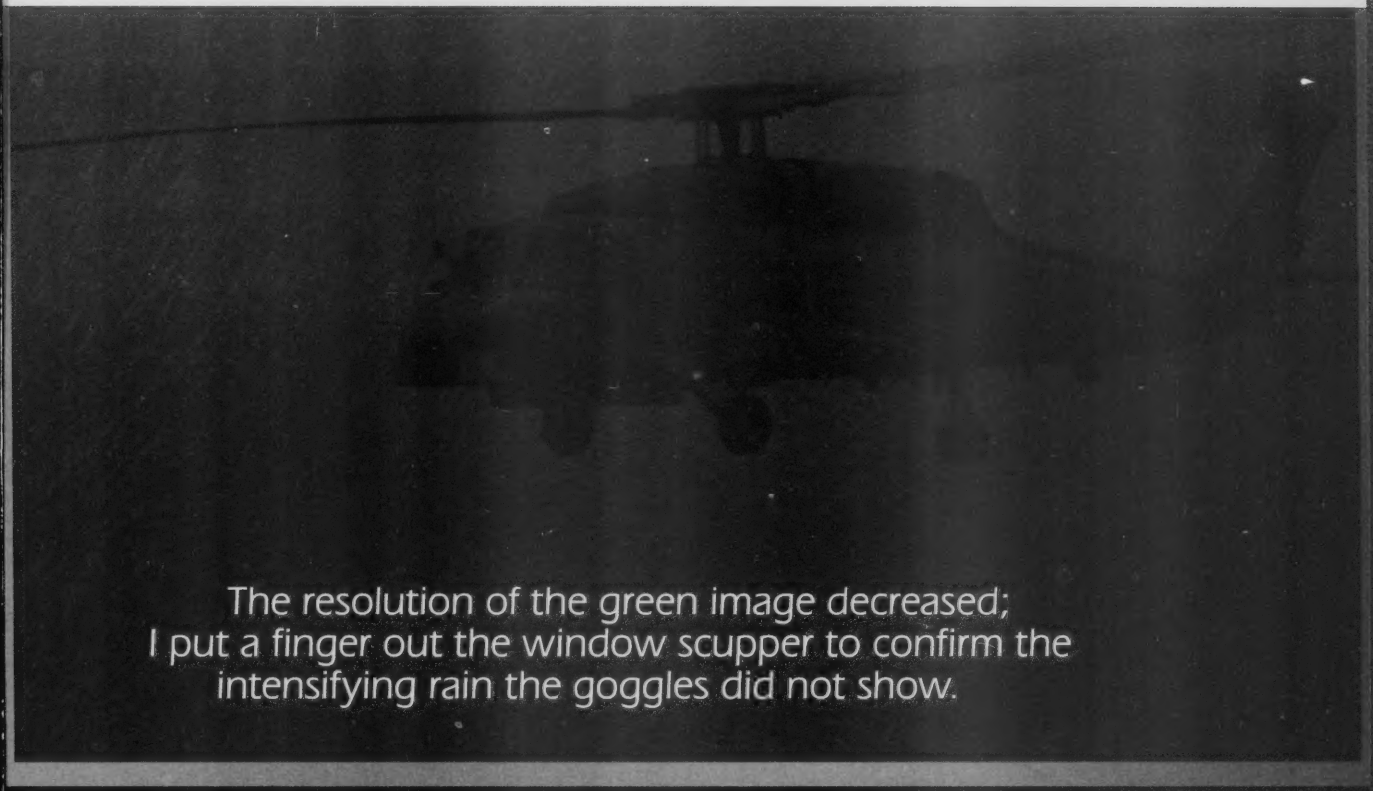


The resolution of the green image decreased; I put a finger out the window scupper to confirm the intensifying rain the goggles did not show.

runway, or go for the boulder-strewn field next to it?

But, what about deciding between three apparently reasonable, though undesirable, alternatives?

In this scenario, we quickly listed our alternatives. We then called the ship to have a pilot come to CIC, because we needed to get someone involved in the problem whose attention wasn't dominated by flying the aircraft.

Choice A: Make a play for recovery. The winds already were well out of the envelope, even for a recovery-assist (RA) landing. The squalls likely would be over the ship at recovery time, even if the ship immediately readied for us. *Worst likely consequence:* Night RA recovery, well beyond the prescribed envelope, with a significant likelihood of blinding rain while behind the ship.

Choice B: LAMPS modus operandi—that is, scout out better weather for the ship to maneuver to.

Worst likely consequence: The squalls were marching up the narrow seas between islands. As a result, we might not locate better weather and, because of the delay, have insufficient fuel for a divert. See Choice A above, but add pressure of being low on fuel.

Choice C: Divert to closed airfield 50 miles to the north, which doesn't possess a compatible instrument approach. *Worst likely consequence:* A combination of unfamiliar field and the possibility of conditions at the field being IMC. We would create prime conditions for a controlled-flight-into-terrain (CFIT) scenario.

We checked the weather to the south of our ship, hoping this was just a narrow band of squalls. We then set a bingo that would make sure we had sufficient fuel to reach the divert field. If at any time we went IMC, we would climb to the off-route, obstacle-clearance altitude for that sector.

Pushing south provided us little solace. The night-vision goggles (NVGs) let us peer through the darkness and lighter rain to the darker clouds beyond. We could see the sea and the lights of ships below. The resolution of the green image decreased; I put a finger out the window scupper to confirm the intensifying rain the goggles did not show. We decided to push through while we still had a few miles visibility, but the rain only grew heavier, and visibility dropped to nothing. We retreated and tried to find some gap in the weather, with no success.

I was concerned that, if we delayed any longer, this weather system might move over our divert field, and close that door to us. As the OinC, I had very strong feelings against taking the helicopter ashore. I recognized my bias and, immediately and consciously, discounted this bias as a factor in my decision—it was time to go.

I announced our intention to divert and asked the detachment maintenance officer aboard the ship to contact our divert airport. We turned north, intending to stay over the water and work our way toward the divert. We planned to stay feet-wet until we completely were clear of the squalls. I underestimated the degree that 50-knot winds can push a 120-knot aircraft out of position. We had been navigating visually, using a chart, with GPS as a backup. We soon lost confidence in what we thought was our position. This flight was setting up to be a classic controlled-flight-into-terrain (CFIT) scenario.

"Mishap HAC attempted to maintain VFR into deteriorating conditions, loss of situational awareness," I remembered reading. I had seen enough accident summaries to instinctively realize our situation. The No. 1 killer of helicopter pilots is flying a perfectly good aircraft into something.

Again, we were faced with undesirable alternatives.

Choice A: Stay low and pick our way north.

Consequence: See CFIT above.

Choice B: Climb into the clouds.

Consequences: Unable to regain VMC, and icing if we went high enough.

In 15 minutes, our comfort zone had shrunk to a very small space. Controlled flight into terrain was the imminent danger; we elected to climb. We energized all our limited anti-ice capability and climbed to 4,000 feet, which was 800 feet above the tallest mountain in the area. Within a few minutes, we were flying in the heaviest rain I ever have experienced. The rain roared against the thin windscreen. The heavy drops clearly were going almost horizontally past the window. I was concerned about water intrusion when the H2P pointed out the outside-air temperature: 3 degrees Celsius.

Few pilots will admit to fear. We use euphemisms like, "I did not have the warm fuzzy feeling," or "My pucker factor was up." There often isn't any time for conscious fear in dealing with an in-flight emergency or situation. I am not saying I was afraid; let's just say I had a "very healthy respect for the seriousness of our situation."

The H2P concentrated on maintaining a good instrument scan, while I tried to raise someone on the radio at the divert field and fix our location. I tuned up the VOR-DME at the divert field and used the VFR chart to determine how far the mountains were from the field. We decided to continue north but only as far as needed. We wanted to be sure we were clear of the elevated terrain before letting down into warmer air.

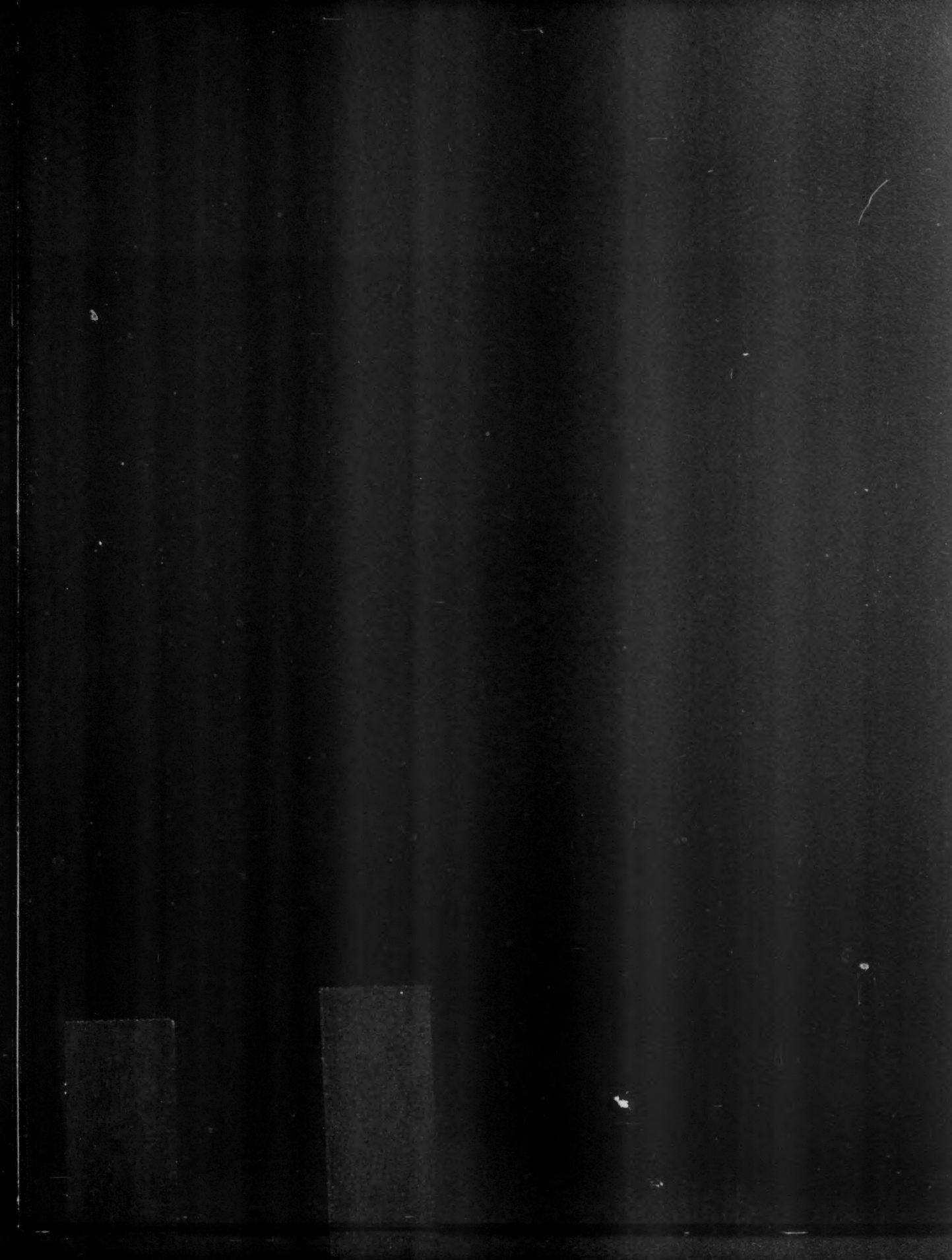
Just as I determined we were north of the higher mountains in the area, we broke out of the weather. One minute, we were blind, and, the next minute, we were in an expansive sky. Not so fast—we still had a problem. I had thought we were over the water the entire time. But, the 50-knot wind had pushed us so far northwest, we were over land when we broke into the clear. There was a good chance we had flown very near to the 3,200-foot-high mountain we had climbed to avoid.

Unable to raise anyone at the closed airport, we transmitted on common-distress frequencies our intention to land and requested someone to acknowledge. The lights at the airport weren't on and weren't pilot-controlled. At one mile from the big, dark area we thought was the airport, I finally saw the runway and entered the downwind to a final landing.

Even after landing, the fun didn't stop; the squall line moved over the field as we taxied to a parking spot. We had landed just in time. The weather cleared by sunrise, and we returned to the ship.

Our comfort level had gone from the size of Texas to the size of my rack on the ship in 15 minutes. The scenario had happened with subtlety, and there was no catastrophic failure to blame. How had this happened? The problem is that our comfort level never should have been that high. Flying aircraft off ships is inherently dangerous, but it's what we do, and, even on the best of days, a razor's edge separates us from disaster.

LCdr. Rashid flies with HSL-46.



Whining and Grinding

Photo by Matthew J. Thomas

By Lt. Matthew Densing

In naval aviation, the unwritten yet implied rule is that everyone in their career will encounter in-flight emergencies. As we briefed for a local, basic, aerial-maneuvering flight, our crew certainly didn't expect we'd soon face a compound emergency. The operations goal for the flight was twofold: to get flight time for our guest pilot, and to get basic-aircraft-maneuver (BAM) training for two squadron ECMOs.

After a standard NATOPS brief, the crew manned up and took off without incident. Our BAM flight in the Olympic MOA went as briefed, and we turned back toward Whidbey, looking forward to the end of another day's worth of flying. As we neared the field, the pilot lowered the gear, flaps, and slats to configure the jet for landing. The integrated-position indicator (IPI) shifted to show flaps 30, slats out, gear down, and a tow-link indication. After some expletive venting, we broke out our pocket checklists (PCLs) and read through the emergency steps.

According to the NATOPS checklist, we needed a visual inspection of our nose gear to determine whether the tow link was up or down. We told the field of our problem and arranged to have an LSO on station to inspect the gear as we made a low approach. We headed east of the field, double-checking the NATOPS checklists and waiting for an LSO to arrive.

Our day suddenly took a turn for the worse as we noticed a loud, high-pitched whining and grinding sound coming from the right side. About one to two seconds later, our right engine instruments showed decreasing engine rpm, with rising exhaust-gas temperature (EGT) and oil pressure rapidly dropping below 20 psi. Five seconds later, the pilot quickly secured the right engine. We told the field we now were operating single engine, with a tow-link indication. After we had stepped through the single-engine-landing checklist, the LSO called in on-station. We turned back toward the field to set up for a single-engine low approach.

As we dragged ourselves skyward after the approach, the LSO said our tow link appeared up. With the short-field arresting gear previously derigged, we turned downwind and made a normal landing.

After engine shutdown back in our line, the maintainers saw oil pooled in the tailpipe, along with oil residue inside the engine-bay door and on the compressor case, keel, and starboard empennage. When they checked for freedom of rotation, they found the compressor stage made a grinding noise when rotated and did not rotate the turbine stage.

Several days later, an engineering inspection revealed a 4.5 engine-bearing failure. Historically, the last three 4.5 bearing failures in which the compressor stage failed all had resulted in Class-A mishaps. The extremely rapid nature of this failure, from initial cockpit indications to turbine-shaft separation and possible engine fratricide, makes this a time-critical emergency. Our crew's avoidance of another possible Class-A mishap can be attributed to the pilot's mere-seconds reaction in shutting down the engine. Good crew coordination also helped to bring the jet back in one piece.

Lt. Densing flies with VAQ-140.

Other End of the Stick

Harness—"Locked."
"Locked."
Landing gear—"Three down and locked."
"Three down and locked."

By LCdr. John D. Sullivan

It was a typical week at the VT training command, that place we all hated until you actually got on the other end of the stick. Instructor-pilot (IP) duty was awesome for me as a helo bubba. The job was so drastically different from the e-mail barrages and stacks of paperwork that we all know and love. Being an IP is addictive for a pilot and really is rewarding, particularly as you send on an on-wing or any student whom you taught from scratch. To this day though, I won't admit to my 14 on-wings that I enjoyed every minute of it.

I was about a third of the way through my tour, and I was one of our three schedule writers. We worked in a three-week rotation for one of three flights and scheduled about 50 pilots and students. In this situation, the skeds officer usually is limited to one 2.0 bag a day. The problem is, when you start to write for that week, you are either the early-morning or a late-evening player. I always preferred the early bag, so I could get out of work at a decent hour and avoid the Milton traffic to my house in Pensacola.

My predecessor had scheduled me for a Monday-night bag. I came in and worked the schedule for the flight and started to figure how I could rotate back to my desired early-morning brief. I could take a flight that met the SOP and work the early morning schedule. That option meant I would finish my night fam and be back at 0700 for a brief with an on-paper 10 hours of crew rest.

For some unknown reason, we both had called the gear down when it still was up.

Unfortunately, my flight is what we call a chain-of-command flight. Yes, it's a new Air Force term, which means any flight leader, or senior skeds officer, can fly someone's on-wing when the primary instructor is on leave for an extended period of time. While this practice is a necessary evil, it prevents a student from getting behind the power curve.

Well, the night radio-instrument (RI) flight went a bit rough, and we needed to really talk. So, the well-planned, quick debrief turned into an hour-long, step-by-step, painful debrief—a worthwhile effort, as the student naval aviator (SNA) did significantly better on his next flight. After the debrief, I began my trek home through cosmopolitan Milton.

When I finally got home, it didn't take long to crash out. However, before I fell asleep, I made a quick call to push back my morning brief to make sure we weren't within the 10-hour window per our SOP. After my required 10 hours, I awoke and headed to the squadron. I got stuck behind some tourist or retiree going 10 mph below the speed limit. I finally got to the squadron and went to the line shack.

After our brief, we walked to the bird. The mission was a C4202, which is a FAM-10 for those of us who remember before-joint-services training. This flight usually was my hell ride for my on-wings, but we kept it basic this day. My student was having a rough day anyway, not surprising because he had sat for eight days. As we know, it's difficult to stay proficient at that point in training.

We stepped through everything item-for-item. After the first pass at lovely Brewton, he already had scored an optional warmup, but, of course, he didn't know it. The landing put a kink in my back that took a while to straighten out. For the earlier flight, the new syllabus calls for the introduction of the low-altitude power loss (LAPL), so the procedure was fair game; we thoroughly had discussed it in the brief.

Here is where the scenario went south. The first time, I pulled back on the power and said the horrible word we all hate—"simulated"—all I saw was a frozen figure in the front seat, as we dove straight for the deck. I recovered the bird and waved off the scenario to demonstrate the maneuver. We redid all the demos at every point in the pattern. After all that, we discussed what happened and decided it was time for a try from the front.

His second attempt was "simulated," and, again, he froze like a mime to another recovery and waveoff. Any other day, I would have called it quits, but I really wanted this guy to get it down. After two more frustrating attempts, I took the controls and decided I needed a landing. I turned final and went through the checklist, which, of course, rolled off the tongue.

Harness—"Locked."

"Locked."

Landing gear—"Three down and locked."

"Three down and locked."

We rolled out at about 500 yards. Suddenly, my brain broke the monotony, slapped my dopey ass, and said, "Hey idiot, check again."

For some unknown reason, we both had called the gear down when it still was up. I tried to avoid saying it, but I blurted out an inappropriate, "Three down and @#$%%!"

I then did what I should have done the first time. I powered-up and waved it off at the same time our ever-so-vigilant, runway-duty officer radioed me. We headed home and landed.

I had met the minimum crew rest and pushed back my brief, but canceling the event would have been the best answer. We all get into a rhythm, particularly in the fleet. I should have stayed on the night schedule, versus pulling the switch. After that day, no matter what else happened throughout my IP duty, I would do something, well, stupid, every few weeks, however minor. We all have these lapses; it's a measure of whether we recognize it or not, although never quite to the degree of this story. We all unknowingly perform in one extreme or another; complacency puts us there—one second from a mishap. I had more than 1,200 hours in model before this flight.

Let's face it, I am a helo bubba, to the core, and a good fixed-wing instructor, but we all are susceptible to mistakes on any given day. If we were perfect, there would be no reason for this magazine, right?

LCdr. Sullivan flies with HSL 42. He was flying T-34s with VT-2 at Whiting Field at the time of the incident.

Crew Resource Management

Situational Awareness
Assertiveness
Decision Making
Communication
Leadership
Adaptability/Flexibility
Mission Analysis

Sharp Eyes

By Ltjg. Pete Haynes

We were running to our E-6B for an exercise-alert launch to test our capability to "beat the threat." Our aircrew this night was very junior. I was on my aircraft-commander (AC) route check, my engineer was on his first flight since he qualified as a flight engineer (FE), and the flight-engineer trainee (FE-T) was on his third trip ever. The pilot in the left seat had joined our crew just for this night flight, and he hadn't flown in a week.

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Once our crew was notified of the alert launch, we quickly headed to the jet. With it already preflighted and cocked, our goal was to get airborne as soon as possible. I jumped into the right cockpit seat, while the FE-T started the auxiliary-power unit (APU). My guest pilot then strapped into the left seat and cleared the engines for start. The engine starts went as planned, and we waited on the radio-access door to be closed before we could begin the short taxi to the active runway.

Just as the "Radio Access Door Open" light flicked out, the FE-T exclaimed something like, "Holy @#%@#." The other pilot and I looked at the FE-T and asked for an explanation. He simply said, "We have no gas in the No. 1 tank, and the center tank has 60K."

I turned around in my seat, not having a good view of the engineer's panel from the right seat, and checked the gauges. Sure enough, the gauges looked very strange. The following chart indicates our planned fuel load, compared with our actual fuel load:

	No.1 Reserve Tank	No.1 Outboard Tank	No.2 Inboard Tank	Center Tank	No.3 Inboard Tank	No.4 Outboard Tank	No.4 Reserve Tank
Planned Fuel	3K	16K	25K	30K	25K	16K	3K
Actual Fuel	3K	0.7K	25K	60K	25K	4K	3K

Note: 1k = 1,000 pounds of fuel.

An off-duty engineer noticed we were not taxiing and came out to see if he could help. We explained our situation to him on ICS. He checked the ground-refueling panel, located on the exterior of the aircraft, and confirmed the gauges had the same indications we saw in the flight deck. From the time we fueled the aircraft and were ready for launch, nearly 30,000 pounds of fuel had migrated to the center fuel tank.

If my FE-T hadn't spotted the discrepancy and brought it to everyone's attention, this event probably would have resulted in a mishap report and a different *Approach* article. The center of gravity with the actual fuel load was out of forward limits. The required stabilizer-trim setting for takeoff, calculated based on the migrating fuel load, also severely was out of limits. In fact, it was extrapolated off the NATOPS chart. If we had tried to take off, the jet may not even have left the ground because of the extreme control forces. The pilot at the controls might not have been able to pull the jet off the deck. However, this fact would not have been realized until rotation speed, which was 142 knots. At this speed, we only would have had about 4,000 feet of runway remaining: an insufficient distance to stop the aircraft without departing the runway. If the pilot at the controls had taken off and managed to get airborne, he may not have attained a positive rate of climb.

Fuel loading on the aircraft is designed to limit the stress and bending loads on the aircraft wings. The reserve tanks were full, which applied weight on the wing tips. The outboards were empty, leaving no weight two-thirds down the wing. The inboards were full, adding stress to the inboard wing. The full center tank would have added stress and bending loads at the wing roots, where it attaches to the fuselage. NATOPS prohibits fuel loading inconsistent with tested charts to prevent unacceptable stress on the wings. Thank goodness we didn't flight test this aircraft configuration.

Fortunately, the FE-T had his scan going for our late-night takeoff, and he spoke up at the first sign of a problem. I don't think I'll ever again underestimate the importance of assertiveness as one of the seven critical CRM skills. We also received a good refresher on the center-of-gravity concept. Despite being a relatively junior member of the crew, the FE-T's assertiveness may have saved our lives.

Ltjg. Haynes flies with VQ-3.

Beware the ORM Gods' Wrath

By LCdr. Mark Asuncion

As safety officer of my squadron, no one was more relieved than I when I made our squadron's final trap on USS *Nimitz* (CVN-68) during our 2005 WestPac deployment. After ORMing the heck out of the air-power demonstration for our tigers, I welcomed a break from worrying about mishaps, hazards, and dangers of the flight deck until the flyoff. For five months, three weeks, and five days, our squadron had done a great job of applying ORM on the flight deck, in the air, and on liberty. This effort had resulted in zero mishaps on cruise and the least number of liberty incidents for the entire airwing during our nine (yep, nine) port calls.

Soon after my flight, I had to prepare one last ORM lecture to give the entire squadron, per direction. I must admit I thought this task was ORM overkill. We just had had our safety standdown on the ship a week earlier and a series of mandatory return-and-reunion (R&R) briefs, which talked about ORM. Squadronmates, enlisted and officer, were asking me, before the 2030-to-2200 brief in the fo'c'sle, why we were having yet another lecture on ORM, the third in the past week and a half. All I could do was bite my tongue and give a wink and a smile.

Before I walked down to the fo'c'sle to give my presentation, I made a quick pass through the ready room to gather any stragglers. The only person there was the ASDO, who had to stay and watch the phones. Everyone else already was on the fo'c'sle awaiting my presentation. After our CAG and skipper spoke to the squadron, emphasizing safety, I went through my ORM presentation. I used a scenario of a road trip to Ensenada and a maintenance evolution on a carrier at night. The presentation turned into a good interactive discussion. I was pleased with the squadron's attentiveness and was confident the message had been re-absorbed. But, I still was a little irked at giving the presentation so soon after the safety standdown and R&R briefs.

Two nights later, the evening before the flyoff, I successfully—and unbelievably—had fallen asleep amidst the Halo chatter in the JO jungle (I had been displaced from my stateroom to make room for my roommate's tiger). Suddenly, though, I was awakened by a phone call from the SDO. Looking at the time and realizing I had about five hours before I had to wake up for the flyoff brief, I answered the phone a little perturbed. The SDO said that one of our maintainers just had gotten hit by a wing during a wingspread evolution, and temporarily was knocked unconscious. I quickly threw on my flight suit and headed into the ready room, where I found the XO and admin officer talking on the phone and executing the pre-mishap plan. The SDO was standing behind them, just watching. As I approached, the SDO told me the maintainer was in medical, and, though she was conscious, there was a good probability she would be on a medevac in the morning.

Apparently, during a normal wingspread evolution, the maintainer had been standing out of place, inside the wingspread arc. When the wing came down a lot faster than expected, it had hit her and thrown her back about five feet. In the process she had lost her cranial, and hit her head on the nonskid, momentarily knocking her unconscious. When I asked who it was, the SDO said it was one of our AD3s, the *same* one who was the ASDO the night of my ORM lecture and, thus, the only person who hadn't attended.

Meanwhile, the XO and admin officer stepped through various parts of the pre-mishap plan, trying to contact people on the ship and determine the type of mishap classification because of injury. Specifically, they wanted to reach strike ops to give the five-minute voice report. Nobody in the office answered the phone, so we went on a manhunt to locate him. After getting the wrong brick and stateroom numbers for him, I went down to the O-3 level looking for his stateroom, to no avail. After getting sidetracked in medical, I returned to the ready room almost an hour later to see the SDO shaking his head. I asked if the voice report had gone out and if we had found strike ops. He said no and that we didn't need to because, according to the pre-mishap plan, only Class A and B mishaps required the voice report. We had wasted an hour trying to do an assumed step, instead of following the pre-mishap plan.

Even if flight operations are over, something always can bite you.

I glanced at my watch and saw I had about three-and-a-half hours before I needed to get up and brief the flyoff; the SDO was in the same boat. With that realization, I dispatched him to his rack, and I went to mine, hoping the Halo tournament had ended for the night.

A little tired, but excited to get home, all four E-2s successfully launched for the flyoff in the morning, or, in this case, a few hours later in the morning.

Beware the ORM Gestapo's Wrath

By LCdr. Mark Asuncion

As safety officer of my squadron, no one was more relieved than I when I made our squadron's final trap on USS *Nimitz* (CVN-68) during our 2005 WestPac deployment. After ORMing the heck out of the air-power demonstration for our tigers, I welcomed a break from worrying about mishaps, hazards, and dangers of the flight deck until the flyoff. For five months, three weeks, and five days, our squadron had done a great job of applying ORM on the flight deck, in the air, and on liberty. This effort had resulted in zero mishaps on cruise and the least number of liberty incidents for the entire airwing during our nine (yep, nine) port calls.

Soon after my flight, I had to prepare one last ORM lecture to give the entire squadron, per direction. I must admit I thought this task was ORM overkill. We just had had our safety standdown on the ship a week earlier and a series of mandatory return-and-reunion (R&R) briefs, which talked about ORM. Squadronmates, enlisted and officer, were asking me, before the 2030-to-2200 brief in the fo'c'sle, why we were having yet another lecture on ORM, the third in the past week and a half. All I could do was bite my tongue and give a wink and a smile.

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My plane, the same one that had hit our maintainer the night before, was limited to 200 knots because of a missing structural member: the vapor-cycle fan. As a flight, we collectively decided to keep our planned four-plane-formation plan, only at 200 knots. We were eager to put on a good show for our families and sister squadrons waiting in Pt. Mugu.

During the transit, however, one of the other E-2s reported his flaps were stuck at 10 degrees, meaning he could not fly past 190 knots. Over tactical frequency, we decided to scrap the four-plane diamond plan and just come in a four-plan echelon, at a speed below 190 knots. During our form practices in the prior weeks, no one had flown form below 190 knots or in the 10-degree-flap configuration. However, this configuration didn't seem difficult, so we went with it.

Unfortunately, the visibility at Pt. Mugu wasn't as expected. Our lead aircraft stayed high at the initial-entry point until he saw the field. Once seeing the field, he began to descend to the carrier-break altitude. As he descended, his airspeed, according to my indicator, was past 190 knots. As he began to pull away from the formation, I, as Dash 2, called three different times for the lead to decrease speed by 10 knots to keep formation integrity. Dash 3 came over tactical and concurred. However, we received no transmissions from the pilot or co-pilot of the lead aircraft. Finally, about a mile from the runway, the lead aircraft slowed down. The rate of decrease was too great and unexpected, as I was at idle, passing the lead aircraft. Dash 3 passed me, and Dash 4 passed him. The formation quickly spread apart as we tried to regain our safety margin. Fortunately, we were able to do so. After a not-so-hot-looking formation, we landed to the wry smirks of some of our sister squadrons but ever so happy to be on deck—finally back from cruise.

That night, I thought about the last three days and realized there were a lot of ORM lessons to be learned. Cruise is not over until it's over. Routine flight-deck operations always require adherence to ORM. Had the injured maintainer followed written procedure, her injury most likely would not have happened.

The SDO and pre-mishap plan are there for a reason. Drills and training do not make a bit of difference if people interfere with the actual execution. I couldn't help but wonder what would have happened if the SDO was allowed to execute the pre-mishap plan the way it was intended. Without the well-intentioned help from the senior officers, would we have wasted so much time, energy, and the necessary crew rest?

Flying formation in conditions not briefed is not good. Though we had ORM'ed the flyoff, we didn't take into consideration airspeed or configuration changes. The decision to continue the altered fly-in was made by all of us, on tactical freq, but without the complete time-critical-ORM analysis. If we had done this process, perhaps provisions for lost comms, airspeed limitations, and other variables would have been taken into account.

Never, ever complain about too much ORM training, no matter how much success you've had during a deployment. Even if flight operations are over, something always can bite you.

Was it a coincidence that the only person not to attend the ORM lecture was the one person injured on the night before the flyoff? And coincidence her mishap resulted in a flawed execution of the pre-mishap plan, which decreased crew rest before a formation flight flown in a configuration, airspeed, and flow not previously discussed? Probably. However, there's a part of me that thinks the ORM gods are smiling above, having given us a good, humbling lesson on the importance of ORM. And if they do truly exist, take it from me, never complain about too much ORM training, or beware their wrath.

LCdr. Asuncion flies with VAW-117.

Mishap-Free Milestones

HSL-37	12 years	70,000 hours
VP-1	23 years	135,000 hours
VP-30	42 years	415,000 hours
HMH-466	22 years	60,000 hours
VP-45	37 years	232,500 hours

Deploying to Iraq:
Never a Dull Moment

By Cdr. Paul McKeon

"We're going to do what?"

That question was my initial reaction when I was told just a few weeks before cruise that my squadron was deploying to Iraq. Since VAQ-141 is a carrier-based CVW squadron, the concept of land-basing in Iraq ran counter to all our deployment plans and our institutional knowledge as a deploying unit.

Before I even had a moment to think or react, I also was told the squadron would maintain a presence on the carrier. We would be split between Iraq and the carrier, something previously never done for any length of time in the Prowler community. While the logistics of this deployment would be complicated, my first thoughts went to how I safely would accomplish the mission under these challenging conditions. Now, months later, I can look back on our experiences to share how we addressed the challenges of this unique deployment.

The CNO has commented on the need for naval forces to be flexible and ready to move ashore, so we're likely not the last squadron to experience the daily challenges of split-site combat operations. Here's how we did it.

VAQ-141 was tasked to send two of our four aircraft, three out of six crews, and roughly a third of our maintainers to Al Asad Air Base, Iraq, for the duration of our deployment. The remainder of our squadron stayed on board USS *Theodore Roosevelt* (CVN-71). Over about a five-month period, we flew around-the-clock combat sorties from Iraq, while simultaneously flying combat hops, unit-level-training (ULT) events, and pilot carrier-qualification flights from the boat. Heavy jet maintenance, such as phase and special inspections, normally was done on the boat. Aircrew and jets regularly were rotated between Iraq and the ship. The logistics of

maintaining two sites was a daily challenge, making it critical that we factor safety into every decision.

Here are key safety and ORM issues we dealt with:

Pilot night-carrier-landing currency. I was directed by CVW-8 to maintain pilots within a 14-day window of their last night trap. This currency issue required a constant shuffling of aircraft and pilots between the ship and Iraq. Junior pilots were brought on board more frequently to give them additional day-and-night looks at the ball. Senior pilots were kept in Iraq longer because their proficiency was less affected by time away from the boat.

Pilot landing proficiency. While we generally maintained pilot currency within 14 days, our pilots were by no means proficient. Averaging about nine traps per month, there simply were not enough looks behind the boat, especially for our nuggets. To provide additional experience, trap-cat-traps were scheduled whenever possible, including at night.

ECMO boat proficiency. The side-by-side nature of the Prowler's cockpit allows the front-seat ECMO to assist the pilot in the carrier approach and landing environment. However, with limited traps to go around, ECMO proficiency suffered in a manner similar to pilots. Junior ECMOs were given additional frontseat flights, at the expense of more senior ECMOs, to develop their boat skills and to improve their proficiency.

Flight-hour waivers. With near round-the-clock operations in Iraq, our aircrew averaged 80 to 100 flight hours per month, well above OpNavInst 3710 guidelines. With careful consultation with our flight surgeon, I issued flight-time waivers to all aircrew and closely monitored them for signs of fatigue. Because the vast majority of squadron flight time occurred in Iraq, aircrew regularly were rotated to the ship to avoid burnout. This rotation help spread out the flight time across the entire ready room.

Aircrew rotation. Because of CQ requirements and my desire to even out flight time, aircrew frequently were shuttled between the ship and Iraq. These movements carefully had to be orchestrated between the two locations to make sure crew day and crew rest were factored in. For instance, a crew in Iraq flying an early morning event might brief at 0500, fly the mission from 0700 to 1100, and then return to the boat. This crew obviously would not be a good candidate to fly a late-night mission from the boat on the same day. Short-notice rotations sometimes were unavoidable because of jet or currency issues, but these rotations were avoided when possible because they tended to disrupt daily routines. We found that publishing a spreadsheet, which showed when the rotations were to occur over the next two weeks, was the best way to add stability and certainty to people's lives and remove a possible source of stress.

Mishap reporting and notification. Premishap binders and materials were placed in Iraq and at the boat. Because of frequent communication outages in Iraq, alternative communication paths were established. These backup communication paths made sure a mishap report and other information could be reported rapidly to the ship.

Split maintenance. A carrier-based squadron is not manned to support continuous split-site operations. We accomplished the mission by carefully balancing quals at both locations, by regularly rotating maintenance personnel, and by borrowing Sailors with selected skill levels from other squadrons. Regular rotations between the two locations also helped prevent maintainer burnout because of the heavy pace of operations in Iraq.

Maintenance documentation. Logbooks and NALCOMIS backups had to be shifted constantly as the jets moved between Iraq and the ship. Accurate maintenance documentation prevented confusion and possible safety issues generated when jets were swapped, especially when the swaps occurred on short notice.

Maintenance days. Because there were no days off in Iraq (in comparison, the ship averaged five days of port time per month), the squadron scheduled two days per month for maintenance. These days had little or no flying scheduled and allowed the maintenance det time to get caught up on accumulated up-gripes. These days also provide a breather from the near-continuous OpTempo. Similarly, aircrew were able to get caught up on paperwork, hold meetings, and take a break from flying.

This partial list of what we dealt with demonstrates the range of safety issues that must be addressed as naval aviation embraces the idea of split-based and expeditionary operations. While the challenges were new to us, and every day brought new problems, we still relied on the ORM process to make sure we were doing things in a prudent and safe manner. In the end, we safely accomplished the mission, while stretching the boundaries of what a squadron can achieve. We demonstrated once again the flexibility and power inherent in today's naval aviation.

Cdr. McKeon is the commanding officer of VAQ-141.

Oh, It's Just Risk Management!

One of the Navy's and Marine Corps' biggest challenges in embedding ORM into our culture is the name... it is called OPERATIONAL Risk Management. We want ORM to be a part of how we do business, all the time, aboard ship or at home, working or relaxing. Perhaps we should just change the meaning of the 'O'? How about these possibilities:

- Overall Risk Management, or . . .
- On-duty Risk Management, or . . .
- On-deck Risk Management, or . . .
- On-the-job Risk Management, or . . .
- Occupational Risk Management, or . . .
- Off-duty Risk Management, or . . .
- Off-road Risk Management, or . . .
- On-the-highway Risk Management, or . . .
- Outdoor-barbeque Risk Management, or . . .
- Outboard-motor Risk Management, or . . .
- Off-shore-fishing Risk Management, . . .
- Over-the-top Risk Management (for the X-Games wannabes), or . . .
- Out-of-bounds Risk Management (for the sports nuts), or . . .
- Overtime Risk Management

O _____ Risk Management . . . you fill in the blank and "just do it."

To put ORM into practice:

1. Identify hazards or threats
2. Assess the hazards or threats to determine risk
3. Make risk decisions after developing controls
4. Implement the controls
5. Supervise and review – watch for changes

By Capt. Ken Neubauer


The mission is over. It's time to get your feet back on the ground.
You've done your best to return. Now, do your best to avoid the road to destruction.
It's your life. Be there.
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